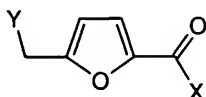


What is claimed is:

1. A furan derivative represented by the following Formula 1 or its pharmaceutically acceptable salt:

Formula 1



5 wherein, X represents H, OH, OR or NR^1R^2 and Y represents OR, NR^1R^2 or $\text{SC}(=\text{NH}_2)\text{NH}$; and

 wherein, R represents hydrogen, naphthalene, aryl group having three or less substitution groups selected from among methyl, methoxy, chloro, bromo, iodo, nitro and fluorine, or
10 a $\text{C}_1\text{-C}_4$ aliphatic alkyl group having four or less substituted fluorine; and

R^1 and R^2 are the same or different from each other and each represents hydrogen, naphthalene, aryl group having three or less substitution groups selected from among methyl,
15 methoxy, chloro, bromo, iodo, nitro and fluorine, or a $\text{C}_1\text{-C}_3$ aliphatic alkyl group, or R^1 and R^2 are linked with carbon, oxygen, hydrogen, or nitrogen having an $\text{C}_1\text{-C}_3$ aliphatic alkyl group and together represent an aliphatic alkyl group.

20 2. The furan derivative or its pharmaceutically acceptable salt according to claim 1, wherein the X and Y are selected from the group consisting of pairs of X and Y listed

in the following Tables 1 to 7.

TABLE 1

No.	X	Y
1	H	HO-
2	H	CH ₃ COO-
3	H	C ₆ F ₅ O-
4	H	CH ₃ O-
5	H	3,4-Cl ₂ C ₆ H ₃ O-
6	H	4-NO ₂ C ₆ H ₄ O-
7	H	2,4,6-Cl ₃ C ₆ H ₂ O-
8	H	4-BrC ₆ H ₄ O-
9	H	3-CH ₃ -4-ClC ₆ H ₃ O-
10	H	C ₆ Cl ₅ O-
11	H	4-CNC ₆ H ₄ O-
12	H	3-CF ₃ C ₆ H ₄ O-
13	H	4-CH ₃ OC ₆ H ₄ O-
14	H	2,4-F ₂ C ₆ H ₃ O-
15	H	3-BrC ₆ H ₄ O-
16	H	2-NO ₂ C ₆ H ₄ O-
17	H	2-BrC ₆ H ₄ O-
18	H	3-Cl-4-FC ₆ H ₃ O-
19	H	2-Cl-4-BrC ₆ H ₃ O-
20	H	2-CH ₃ OC ₆ H ₄ O-
21	H	3-CH ₃ -4-NO ₂ C ₆ H ₃ O-
22	H	2-Cl-4-FC ₆ H ₃ O-
23	H	2,3-Cl ₂ C ₆ H ₃ O-
24	H	2-NO ₂ -4-ClC ₆ H ₃ O-
25	H	4-ClC ₆ H ₄ O-
26	H	2,4-Cl ₂ C ₆ H ₃ O-
27	H	2-(CH ₃) ₂ CH-4-Cl-5-CH ₃ C ₆ H ₂ O-
28	H	2,4,6-Br ₃ C ₆ H ₂ O-

29	H	2-CH ₃ C ₆ H ₄ O-
30	H	2, 6- (CH ₃) ₂ C ₆ H ₃ O-

TABLE 2

No.	X	Y
31	H	C ₆ H ₅ COO-
32	H	C ₆ H ₅ CH ₂ COO-
33	H	2, 6-F ₂ C ₆ H ₃ CH ₂ COO-
34	H	2-Cl-6-FC ₆ H ₃ CH ₂ COO-
35	H	3-Cl-C ₆ H ₄ CH ₂ COO-
36	H	3-SC ₄ H ₃ CH ₂ COO-
37	H	3-F-C ₆ H ₄ CH ₂ COO-
38	H	2-NpCH ₂ COO-
39	H	2, 4-F ₂ C ₆ H ₃ CH ₂ COO-
40	H	(C ₆ H ₅) ₃ CCOO-
41	H	2-CH ₃ O-6-FC ₆ H ₃ CH ₂ COO-
42	H	3-CH ₃ O-6-FC ₆ H ₃ CH ₂ COO-
43	H	2-BrC ₁₄ H ₂₈ COO-
44	H	C ₁₄ H ₂₉ COO-
45	H	4-FC ₆ H ₄ NHCOO-
46	H	C ₆ H ₅ NHCOO-
47	H	(CH ₃) ₂ CHNHCOO-
48	H	3-CF ₃ C ₆ H ₄ NHCOO-
49	H	3-ClC ₆ H ₄ NHCOO-
50	H	4-BrC ₆ H ₄ NHCOO-
51	H	2, 4-(CH ₃ O) ₂ C ₆ H ₃ NHCOO-
52	H	C ₆ H ₁₁ NHCOO-
53	H	CH ₃ CH ₂ CH ₂ CH ₂ NHCOO-
54	H	3, 4-Cl ₂ C ₆ H ₃ NHCOO-
55	H	2-ClC ₆ H ₄ NHCOO-
56	H	CH ₃ CH ₂ NHCOO-

57	H	2-NpNHCOO-
58	CH ₃ O-	3,5-Cl ₂ -4-NH ₂ C ₆ H ₂ C(NH ₂)=NO-
59	CH ₃ O-	2-CH ₃ O-4-CH ₂ =CHCH ₂ C ₆ H ₃ O-
60	CH ₃ O-	2,4-Cl ₂ C ₆ H ₄ O-

TABLE 3

No.	X	Y
61	CH ₃ O-	2-ClC ₆ H ₄ O-
62	CH ₃ O-	2-BrC ₆ H ₄ O-
63	CH ₃ O-	2,4-Cl ₂ C ₆ H ₄ O-
64	CH ₃ O-	2-NpO ⁻ *
65	CH ₃ O-	C ₆ F ₅ O-
66	CH ₃ O-	2-NO ₂ -4-ClC ₆ H ₃ O-
67	CH ₃ O-	2-NO ₂ C ₆ H ₄ O-
68	CH ₃ O-	2-(CH ₃) ₂ CH-5-CH ₃ C ₆ H ₃ O-
69	CH ₃ O-	4-Cl-C ₆ H ₄ O-
70	CH ₃ O-	3,4-(CH ₂) ₃ C ₆ H ₃ O-
71	CH ₃ O-	2-Cl-4-BrC ₆ H ₃ O-
72	CH ₃ O-	2-Cl-4-FC ₆ H ₃ O-
73	CH ₃ O-	3-CH ₃ C ₆ H ₄ O-
74	CH ₃ O-	2-CH ₃ -4-ClC ₆ H ₃ O-
75	CH ₃ O-	3-CH ₃ -4-ClC ₆ H ₃ O-
76	CH ₃ O-	2,4-(CH ₃)C ₆ H ₃ O-
77	CH ₃ O-	3,5-(CH ₃) ₂ -4-ClC ₆ H ₂ O-
78	CH ₃ O-	4-(CH ₃) ₂ CHC ₆ H ₄ O-
79	CH ₃ O-	4-IC ₆ H ₄ O-
80	CH ₃ O-	4-ClC ₆ H ₄ O-
81	CH ₃ O-	3,4-(CH ₃) ₂ C ₆ H ₃ O-
82	CH ₃ O-	HN=C(NH ₂)S-
83	CH ₃ O-	2-NpO ⁻ *
84	CH ₃ O-	C ₆ F ₅ O-

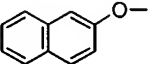
85	CH ₃ O-	(CH ₃) ₂ N-
86	CH ₃ O-	HN=C(NH ₂)S-
87	CH ₃ O-	(CH ₂) ₅ N-
88	CH ₃ O-	O(CH ₂ CH ₂) ₂ N-
89	CH ₃ O-	C ₆ H ₅ NH-
90	CH ₃ O-	(CH ₂) ₄ N-
2-NpO- = 		

TABLE 4

No.	X	Y
91	CH ₃ O-	(CH ₃) ₃ CNH-
92	CF ₃ CH ₂ O-	2-NpO-*
93	(CH ₃) ₂ CHO-	4-(CH ₃) ₂ CHC ₆ H ₄ O-
94	(CH ₃) ₂ CHO-	2-CH ₃ OC ₆ H ₄ O-
95	(CH ₃) ₂ CHO-	2,5-Cl ₂ C ₆ H ₃ O-
96	2-ClC ₆ H ₄ O-	CH ₃ CH ₂ OC ₆ H ₄ O-
97	4-ClC ₆ H ₄ O-	2-CH ₃ OC ₆ H ₄ O-
98	C ₆ H ₅ O-	2-ClC ₆ H ₄ O-
99	CH ₂ =CHCH ₂ O-	2,4-Cl ₂ C ₆ H ₃ O-
100	HO-	4-CH ₃ CH ₂ CH ₂ C ₆ H ₄ O-
101	HO-	CHF ₂ CF ₂ CH ₂ O-
102	HO-	4-FC ₆ H ₄ O-
103	HO-	4-BrC ₆ H ₄ O-
104	HO-	2-NpO-*
105	HO-	3-CF ₃ C ₆ H ₄ C(CH ₃)=NO-
106	HO-	2,4-Cl ₂ C ₆ H ₃ O-
107	HO-	2-ClC ₆ H ₄ O-
108	HO-	2-BrC ₆ H ₄ O-
109	HO-	2,5-Cl ₂ C ₆ H ₃ O-
110	HO-	4-FC ₆ H ₄ O-

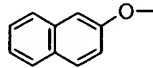
111	HO-	4-Cl-3-CH ₃ C ₆ H ₄ O-
112	HO-	3-ClC ₆ H ₄ O-
113	HO-	2-NO ₂ C ₆ H ₄ O-
114	HO-	4-(CH ₃) ₂ CHC ₆ H ₄ O-
115	HO-	4-Cl-2-NO ₂ C ₆ H ₃ O-
116	HO-	3-CH ₃ OC ₆ H ₄ O-
117	HO-	1-NpO-
118	HO-	4-CH ₃ CH ₂ CH(CH ₃)C ₆ H ₄ O-
119	HO-	4-Cl-3-CH ₃ C ₆ H ₃ O-
120	HO-	C ₆ H ₅ CH ₂ S-
2-NpO- = 		

TABLE 5

No.	X	Y
121	CH ₃ CH ₂ CH(CH ₃)NH-	4-IC ₆ H ₄ O-
122	3-CH ₃ C ₆ H ₄ NH-	4-IC ₆ H ₄ O-
123	(CH ₃ CH ₂) ₂ N-	4-Cl-3-CH ₃ C ₆ H ₃ O-
124	CH ₃ CH(CH ₂ CH ₂) ₂ N-	2,5-Cl ₂ C ₆ H ₄ O-
125	(CH ₂) ₄ CHNH-	CF ₃ CH ₂ O-
126	(CH ₂) ₆ CHNH-	2-CH ₃ OC ₆ H ₄ O-
127	(CH ₃) ₃ CNH-	CF ₃ CH ₂ O-
128	(CH ₂) ₆ N-	2-BrC ₆ H ₄ O-
129	(CH ₃) ₃ CNH-	2-BrC ₆ H ₄ O-
130	(CH ₃) ₂ CHNH-	2,5-Cl ₂ C ₆ H ₃ NH-
131	CH ₃ N(CH ₂ CH ₂) ₂ N-	2,5-Cl ₂ C ₆ H ₃ O-
132	O(CH ₂ CH ₂) ₂ N-	3-CH ₃ -4-ClC ₆ H ₃ O-
133	(CH ₂) ₆ N-	2,5-Cl ₂ C ₆ H ₃ O-
134	(CH ₂) ₅ CHNH-	4-(CH ₃) ₃ CC ₆ H ₄ O-
135	(CH ₂) ₄ NH-	4-IC ₆ H ₄ O-
136	C ₆ H ₅ NH-	4-(CH ₃) ₃ CC ₆ H ₄ O-

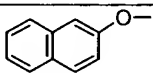
137	$\text{C}_6\text{H}_5\text{NH}-$	$2\text{-NpO}-^*$
138	$4\text{-ClC}_6\text{H}_4\text{NH}-$	$4\text{-IC}_6\text{H}_4\text{O}-$
139	$3\text{-F-4-CH}_3\text{C}_6\text{H}_3\text{NH}-$	$4\text{-IC}_6\text{H}_4\text{O}-$
140	$3\text{-BrC}_6\text{H}_4\text{NH}-$	$4\text{-FC}_6\text{H}_4\text{O}-$
141	$4\text{-FC}_6\text{H}_4\text{NH}-$	$3\text{-ClC}_6\text{H}_4\text{O}-$
142	$3\text{-Cl-4-CH}_3\text{OC}_6\text{H}_3\text{NH}-$	$2\text{-ClC}_6\text{H}_4\text{O}-$
143	$3,4\text{-F}_2\text{C}_6\text{H}_3\text{NH}-$	$4\text{-IC}_6\text{H}_4\text{O}-$
144	$2\text{-CH}_3\text{CH}_2\text{OC}_6\text{H}_4\text{NH}-$	$2\text{-NO}_2\text{-4-ClC}_6\text{H}_3\text{O}-$
145	$2,4\text{-(CH}_3\text{O)}_2\text{C}_6\text{H}_3\text{NH}-$	$2,5\text{-Cl}_2\text{C}_6\text{H}_3\text{O}-$
146	$4\text{-BrC}_6\text{H}_4\text{NH}-$	$4\text{-IC}_6\text{H}_4\text{O}-$
147	$4\text{-FC}_6\text{H}_4\text{NH}-$	$2\text{-NO}_2\text{-4-CH}_3\text{C}_6\text{H}_3\text{O}-$
148	$4\text{-NH}_2\text{COC}_6\text{H}_4\text{NH}-$	$2,5\text{-Cl}_2\text{C}_6\text{H}_3\text{O}-$
149	$2\text{-NO}_2\text{-4-CH}_3\text{OC}_6\text{H}_3\text{NH}-$	$4\text{-F-C}_6\text{H}_4\text{O}-$
150	$4\text{-CH}_3\text{OC}_6\text{H}_4\text{NH}-$	$3\text{-CH}_3\text{-4-ClC}_6\text{H}_3\text{O}-$
$2\text{-NpO}- = $ 		

TABLE 6

No.	X	Y
151	$2,5\text{-F}_2\text{C}_6\text{H}_3\text{NH}-$	$3\text{-ClC}_6\text{H}_4\text{O}-$
152	$2\text{-CH}_3\text{-5-CH}_3\text{O}_2\text{CC}_6\text{H}_3\text{NH}-$	$4\text{-IC}_6\text{H}_4\text{O}-$
153	$2\text{-CH}_3\text{O}_2\text{CC}_6\text{H}_4\text{NH}-$	$2,5\text{-(CH}_3)_2\text{C}_6\text{H}_3\text{O}-$
154	$3,5\text{-(CH}_3)_2\text{C}_6\text{H}_3\text{NH}-$	$4\text{-F-C}_6\text{H}_4\text{O}-$
155	$2\text{-F-5-CH}_3\text{C}_6\text{H}_3\text{NH}-$	$2\text{-NO}_2\text{-4-CH}_3\text{C}_6\text{H}_3\text{O}-$
156	$2,3\text{-Cl}_2\text{C}_6\text{H}_3\text{NH}-$	$2\text{-NO}_2\text{C}_6\text{H}_4\text{O}-$
157	$2\text{-CH}_3\text{OC}_6\text{H}_4\text{NH}-$	$2,5\text{-(CH}_3)_2\text{C}_6\text{H}_3\text{O}-$
158	$2\text{-F-5-CH}_3\text{C}_6\text{H}_3\text{NH}-$	$2\text{-NO}_2\text{C}_6\text{H}_4\text{O}-$
159	$2\text{-CH}_3\text{O}_2\text{CC}_6\text{H}_4\text{NH}-$	$4\text{-I-C}_6\text{H}_4\text{O}-$
160	$4\text{-CH}_3\text{COC}_6\text{H}_4\text{NH}-$	$1\text{-NpO}-$
161	$2,5\text{-F}_2\text{C}_6\text{H}_3\text{NH}-$	$2\text{-ClC}_6\text{H}_4\text{O}-$
162	$2\text{-F-4-BrC}_6\text{H}_3\text{NH}-$	$4\text{-IC}_6\text{H}_4\text{O}-$

163	3-CH ₃ CH ₂ C ₆ H ₄ NH-	4-F-C ₆ H ₄ O-
164	3, 4-(CH ₃ O) ₂ C ₆ H ₃ NH-	4-CH ₃ CH ₂ CH ₂ C ₆ H ₄ O-
165	(CH ₃) ₃ CNH-	4-CH ₃ CH ₂ OC ₆ H ₄ O-
166	2-CH ₃ OC ₆ H ₄ NH-	2-CH ₃ OC ₆ H ₄ O-
167	2-CH ₃ O ₂ CC ₆ H ₄ NH-	2, 4-Cl ₂ C ₆ H ₃ O-
168	2-CH ₃ O ₂ CC ₆ H ₄ NH-	4-ClC ₆ H ₄ O-
169	3, 5-(CH ₃) ₂ C ₆ H ₃ NH-	4-CH ₃ CH ₂ -C ₆ H ₄ O-
170	2, 5-Cl ₂ C ₆ H ₃ NH-	4-CH ₃ CH ₂ CH ₂ C ₆ H ₄ O-
171	2-CH ₃ O-5-CH ₃ C ₆ H ₃ NH-	3-ClC ₆ H ₄ O-
172	2, 3-(CH ₃) ₂ C ₆ H ₃ NH-	3-CH ₃ -4-ClC ₆ H ₃ O-
173	4-ClC ₆ H ₄ NH-	3-CH ₃ -4-ClC ₆ H ₄ O-
174	2-ClC ₆ H ₄ NH-	2-CH ₃ OC ₆ H ₄ O-
175	3, 4-(CH ₃) ₂ C ₆ H ₄ NH-	2-CH ₃ OC ₆ H ₄ O-
176	2, 4-F ₂ C ₆ H ₃ NH-	2-CH ₃ O-4-CH ₃ CH ₂ CH ₂ C ₆ H ₃ O-
177	2-FC ₆ H ₄ NH-	3, 5-(CH ₃) ₂ C ₆ H ₃ O-
178	2-FC ₆ H ₄ NH-	4-ClC ₆ H ₄ O-
179	2, 6-(CH ₃) ₂ C ₆ H ₃ NH-	4-ClC ₆ H ₄ O-

TABLE 7

No.	X	Y
180	2-CH ₃ O ₂ CC ₆ H ₄ NH-	3, 4-(CH ₃) ₂ C ₆ H ₃ O-
181	2-Cl-5-CF ₃ C ₆ H ₃ NH-	4-ClC ₆ H ₄ O-
182	2-CH ₃ O-4-NO ₂ C ₆ H ₃ NH-	4-ClC ₆ H ₄ O-
183	2-NO ₂ C ₆ H ₄ NH-	2-ClC ₆ H ₄ O-
184	4-CH ₃ OC ₆ H ₄ NH-	CHF ₂ CF ₂ CH ₂ O-
185	2, 4-F ₂ C ₆ H ₃ NH-	2, 3, 5, 6-F ₄ C ₆ HO-
186	3, 4-F ₂ C ₆ H ₃ NH-	3, 4-(CH ₃) ₂ C ₆ H ₃ O-
187	3-CH ₃ CONHC ₆ H ₄ NH-	C ₆ F ₅ O-
188	2, 4-(CH ₃ O) ₂ C ₆ H ₄ NH-	2-BrC ₆ H ₄ O-
189	2-CH ₃ OC ₆ H ₄ NH-	4-(CH ₃) ₃ CC ₆ H ₄ O-
190	4-IC ₆ H ₄ NH-	2-BrC ₆ H ₄ O-

191	3-NO ₂ C ₆ H ₄ NH-	4-IC ₆ H ₄ O-
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3. A pharmaceutical composition for preventing or treating bone diseases, comprising the furan derivative or its salt of claim 1 as an effective ingredient.

5 4. The pharmaceutical composition according to claim 3, wherein the bone diseases are osteoporosis, degenerative bone diseases and rheumatoid arthritis.

10 5. Functional foods, health-supporting food or special nutritional food comprising the furan derivative or its salt of claim 1 as an effective ingredient.